

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) An intravascular stent for use in a body lumen, comprising:

a distal section, a proximal section, and a central section positioned between the distal section and the proximal section, each section being aligned along a common longitudinal axis forming the stent;

the distal section and the proximal section having cylindrical rings having a first longitudinal length, and the central section having a cylindrical ring having a second longitudinal length, the first longitudinal length being shorter than the second longitudinal length;

the distal section and the proximal section having a first strut pattern and a second strut pattern respectively, and the central section having a third strut pattern;

the third strut pattern having a substantially uniform repeating series of struts that form a central ring;

wherein the first and the second strut patterns are more dense than the third strut pattern; and

wherein the air to metal ratio of the third strut pattern is substantially uniform.

2. (Original) The stent of claim 1, wherein the third strut pattern includes straight struts.

3 (Original) The stent of claim 2, wherein the straight struts are connected at apices.

4. (Original) The stent of claim 3, wherein the straight struts connected by apices form a cylindrical surface and have a zig-zag configuration.
5. (Original) The stent of claim 2, wherein at least some of the straight struts have undulating members.
6. (Original) The stent of claim 5, wherein the undulating members provide more longitudinal flexibility to the stent than do the straight struts.
7. (Original) The stent of claim 1, wherein the third strut pattern includes undulating struts.
8. (Original) The stent of claim 7, wherein the undulating struts are connected by apices.
9. (Original) The stent of claim 8, wherein the undulating struts connected by apices form a cylindrical surface and have a zig-zag configuration.
10. (Original) The stent of claim 2, wherein the straight struts extend between the distal section and the proximal section.
11. (Original) The stent of claim 7, wherein the undulating struts extend between the distal section and the proximal section.
12. (Original) The stent of claim 1, wherein the distal section and the proximal section each have a plurality of cylindrical rings interconnected along the longitudinal axis.
13. (Original) The stent of claim 12, wherein the cylindrical rings are interconnected by links.
14. (Original) The stent of claim 13, wherein the links have a substantially straight configuration.

15. (Original) The stent of claim 13, wherein the links have an undulating configuration.

16. (Original) The stent of claim 13, wherein the links have a straight section and an undulating section.

17. (Original) The stent of claim 13, wherein the links have a straight section and a curved section.

18. (Currently Amended) An intravascular stent for use in a body lumen, comprising:

a distal section, a proximal section, and a central section positioned between the distal section and the proximal section, each section being aligned along a common longitudinal axis forming the stent;

the distal section and the proximal section each having a plurality of cylindrical rings interconnected along the longitudinal axis;

the distal section and the proximal section having cylindrical rings having a first longitudinal length, and the central section having a cylindrical ring having a second longitudinal length, the first longitudinal length being shorter than the second longitudinal length;

the central section having a plurality of struts connected by apices to form a zig-zag configuration around the circumference of the stent and forming the central section;

the central section struts and apices form a connection between the distal section and the proximal section;

wherein the central section is arranged in a substantially uniform repeating series of struts forming a central ring; and

wherein the central section struts have a substantially uniform air to metal ratio.

19. (Currently Amended) A method of implanting an intravascular stent for repairing a body lumen having vulnerable plaque, comprising:

a catheter having a proximal end and a distal end and an expandable member adjacent the distal end;

an intravascular stent, mounted on the expandable member, the stent having a distal section, a proximal section, and a central section positioned between the distal section and the proximal section, the central section having a plurality of struts connected by apices to form a substantially zig-zag pattern around the circumference of the stent in the central section;

the distal section and the proximal section having cylindrical rings having a first longitudinal length, and the central section having a cylindrical ring having a second longitudinal length, the first longitudinal length being shorter than the second longitudinal length;

the central section struts being arranged in a substantially uniform repeating pattern forming a ring;

the central section struts having a substantially uniform air to metal ratio;

inserting the catheter into the vascular system and advancing the catheter distal end so that the stent is positioned in a body lumen to be repaired;

aligning the stent in the body lumen so that the central section substantially aligns with the area of vulnerable plaque;

inflating the expandable member and implanting the stent in the body lumen; and

deflating the expandable member and withdrawing the catheter from the vascular system.

20. (Currently Amended) A flexible intravascular stent for use in a body lumen, comprising:

a distal section, a proximal section, and a central section positioned therebetween;

the distal section and the proximal section each having a plurality of interconnected cylindrical rings, each cylindrical ring having a first delivery diameter and a second expanded diameter;

each cylindrical ring having a proximal end and a distal end and a cylindrical wall extending circumferentially between the proximal end and the distal end of the cylindrical ring;

the distal section and the proximal section having cylindrical rings having a first longitudinal length, and the central section having a cylindrical ring having a second longitudinal length, the first longitudinal length being shorter than the second longitudinal length;

at least one undulating link attaching each cylindrical ring to an adjacent cylindrical ring, the undulating links being positioned substantially within the cylindrical wall of the cylindrical ring;

the central section having a plurality of struts connected by apices and extending around the circumference of the central section, the struts and apices connecting the distal section to the proximal section, the central section struts being arranged in a substantially uniform repeating pattern forming a central ring; and

the central section having a substantially uniform air to metal ratio.

21. (Original) The stent of claim 20, wherein the central section struts and apices have a zig-zag configuration.

22. (Original) The stent of claim 21, wherein the central section struts have a straight configuration.

23. (Original) The stent of claim 21, wherein the central section struts have a substantially curved configuration.

24. (Original) The stent of claim 21, wherein the central section struts have a substantially straight section and a substantially curved section.

25. (Original) The stent of claim 20, wherein at least one undulating link comprises at least one bend connected to a substantially straight portion, the substantially straight portion being substantially perpendicular to the stent longitudinal axis.

26. (Original) The stent of claim 25, wherein the substantially straight portion of the at least one undulating link is perpendicular to the stent longitudinal axis when the stent is in the first delivery diameter configuration.

27. (Original) The stent of claim 25, wherein the substantially straight portion of the at least one undulating link is perpendicular to the stent longitudinal axis when the stent is in the second expanded diameter configuration.

28. (Original) The stent of claim 20, wherein at least one of the undulating links comprise a plurality of bends.

29. (Original) The stent of claim 20, wherein each cylindrical ring comprises a plurality of peaks and valleys.

30. (Original) The stent of claim 29, wherein two peaks are positioned between each valley.

31. (Original) The stent of claim 29, wherein the peaks of each cylindrical ring are in phase with the peaks of an adjacent cylindrical ring.

32. (Original) The stent of claim 20, wherein the undulating links are configured to provide flexibility to the stent.

33. (Original) The stent of claim 20, wherein the cylindrical rings are configured to provide flexibility to the stent.

34. (Original) The stent of claim 20, wherein the stent is formed from a tube.

35. (Original) The stent of claim 20, wherein the stent is formed from a metal alloy.
36. (Original) The stent of claim 20, wherein the stent is formed from stainless steel.
37. (Original) The stent of claim 20, wherein the stent is formed from a shape memory alloy.
38. (Original) The stent of claim 37, wherein the stent is formed from the group of shape memory alloys consisting of nickel titanium and nickel/titanium/vanadium.
39. (Original) The stent of claim 20, wherein the stent is formed from a pseudoelastic metal alloy.
40. (Original) The stent of claim 39, wherein the stent is formed from the group of pseudoelastic metal alloys consisting of nickel titanium and nickel/titanium/vanadium.
41. (Original) The stent of claim 20, wherein at least a portion of the central section is provided with a cover.
42. (Original) The stent of claim 41, wherein the stent cover is formed of a polymer.
43. (Original) The stent of claim 42, wherein the polymer cover is taken from the group of polymers including PTFE and ePTFE.
44. (Original) The stent of claim 43, wherein the stent cover is attached to the struts of the central section by an adhesive.

45. (Original) The stent of claim 44, wherein the stent cover is attached to the struts of the central section by laser bonding.

46. (Original) The stent of claim 20, wherein at least a portion of the distal section rings are coated with a therapeutic drug to reduce cell growth distal to the vulnerable plaque.

47. (Original) The stent of claim 20, wherein at least a portion of the proximal section rings are coated with a therapeutic drug to reduce cell growth proximal to the vulnerable plaque.

48. (Original) The stent of claim 20, wherein at least a portion of the distal section rings and the proximal section rings are coated with a therapeutic drug to reduce cell growth on either side of the vulnerable plaque.

49. (Currently Amended) An intravascular stent for use in a body lumen, comprising:

a distal section, a proximal section, and a central section positioned between the distal section and the proximal section, each section being aligned along a common longitudinal axis forming the stent;

the distal section and the proximal section each having at least one cylindrical ring interconnected along the longitudinal axis, the number of cylindrical rings in the distal section differs from the number of rings in the proximal section;

the distal section and the proximal section having cylindrical rings having a first longitudinal length, and the central section having a cylindrical ring having a second longitudinal length, the first longitudinal length being shorter than the second longitudinal length;

the central section having a plurality of struts connected by apices to form a substantially uniform, repeating zig-zag configuration around the circumference of the stent and forming a ring having a substantially uniform air to metal ratio; and

the central section struts and apices form a connection between the distal section and the proximal section.

50. (Original) The stent of claim 50, wherein the number of cylindrical rings in the distal section is greater than the number of cylindrical rings in the proximal section.

51. (Original) The stent of claim 50, wherein the number of cylindrical rings in the distal section is less than the number of cylindrical rings in the proximal section.

52. (Original) The stent of claim 50, wherein at least a portion of the distal section rings and/or the proximal section rings are coated with a therapeutic drug to inhibit cell growth.

53. (Currently Amended) An intravascular stent for use in a body lumen, comprising:

a distal section, a proximal section, and a central section positioned between the distal section and the proximal section, each section being aligned along a common longitudinal axis forming the stent;

the distal section and the proximal section having a first strut pattern, and the central section having a second strut pattern;

wherein the second strut pattern has a substantially uniform repeating series of struts that form a ring;

the distal section and the proximal section having cylindrical rings having a first longitudinal length, and the central section having a cylindrical ring having a second longitudinal length, the first longitudinal length being shorter than the second longitudinal length;

the first strut pattern having a first air to metal ratio;

the second strut pattern having a second air to metal ratio;

the second strut pattern having a substantially uniform air to metal ratio;

and

the first air to metal ratio of the first strut pattern being lower than the second air to metal ratio of the second strut pattern.

54. (Original) The strut of claim 53, wherein the first air to metal ratio is from about 80% to 90%.

55. (Original) The stent of claim 53, wherein the first air to metal ratio is less than 80%.

56. (Original) The stent of claim 53, wherein the first air to metal ratio is less than 90%.

57. (Original) The stent of claim 53, wherein the first and second strut patterns are in an expanded configuration.

58. (Currently Amended) A stent for implanting in a body lumen, comprising:
a distal section, a proximal section, and a central section positioned between the distal section and the proximal section, each section being aligned along a common longitudinal axis forming the stent;

the distal section having a first strut pattern, the proximal section having a second strut pattern, and the central section having a third strut pattern;

wherein the third strut pattern has a substantially uniform repeating series of struts that form a ring;

the distal section and the proximal section having cylindrical rings having a first longitudinal length, and the central section having a cylindrical ring having a second longitudinal length, the first longitudinal length being shorter than the second longitudinal length;

the first strut pattern having a first metallic surface area;

the second strut pattern having a second metallic surface area;

the third strut pattern having a third metallic surface area;

the third strut pattern having a substantially uniform air to metal ratio; and

at least one of the first and second metallic surface areas being greater than the metallic surface area of the third strut pattern.

59. (Original) The stent of claim 58, wherein the metallic surface areas of at least one of the first and second strut pattern being less than about 20%.

60. (Original) The stent of claim 58, wherein the first, second and third strut patterns are in an expanded configuration.

61. (Currently Amended) A stent for treating vulnerable plaque, comprising:
a distal section, a proximal section, and a central section positioned between the distal section and the proximal section, each section being aligned along a common longitudinal axis forming the stent;

the distal section and the proximal section having a first strut pattern and a second strut pattern respectively, and the central section having a third strut pattern;

wherein the central section has a uniform repeating series of struts that form a ring;

the distal section and the proximal section having cylindrical rings having a first longitudinal length, and the central section having a cylindrical ring having a second longitudinal length, the first longitudinal length being shorter than the second longitudinal length;

the central section having a substantially uniform air to metal ratio;

each strut pattern having curved portions and straight portions configured to allow the patterns to compress and expand; and

the third strut pattern having fewer curved portions and straight portions than the first and second strut patterns.

62. (Original) The stent of claim 61, wherein the third strut pattern is disposed between the first and the second strut patterns.

63. (Original) The stent of claim 61, wherein the first strut pattern is different than the second strut pattern.

64. (Original) The stent of claim 61, wherein the first strut pattern and the second strut pattern are substantially the same.

65. (Original) The stent of claim 61, wherein the third strut pattern is different than the first and second strut patterns.

66. (Original) The stent of claim 61, wherein the third strut pattern has an air to metal ratio that is higher than an air to metal ratio of the first or second strut pattern.